Topic 02 – Heart failure and cardiomyopathy

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0074

SST2 provides significantly additional prognostic information when compared to NT-proBNP in ambulatory patient with heart failure

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Background ST2, an interleukin-1 (IL-1) receptor family member, is an emerging biomarker promising to assess prognosis in various pathophysiological conditions including heart failure (HF). The aim of this work was to investigate the prognosis interest of this marker in ambulatory patients with stable HF.

Methods Patients were included in this study in 2010. All patients gave informed consent. Clinical characteristics were registered and biomarkers were assessed. Clinical outcomes were registered regularly by a clinical follow-up or by phone by a dedicated physician. We use the prognostic score of Lupon et al. including clinical data, NT pro-BNP, hs-c TnT and SST2 assay. Survival curves were built and data presented as means±SD when normally distributed.

Results 180 patients (mean age 72.5y±12.5y) were included. Left ventricular ejection fraction was 37.1%±14.2%. ST2 concentrations are strongly predictive of all cause mortality [HR 3.15 (95% CI: 1.46-6.8)] and cardiovascular mortality [HR 4.28 (95% CI: 1.5-12.26)] regardless of NT pro-BNP concentrations. Estimation of the risk of all-cause and cardiovascular mortality was significantly improved by adding SST2, NT pro-BNP and hs-c TnT levels to clinical covariates. Risk of mortality was estimated using Cox proportionnal hazard models. Discrimination, assessed by c-index, rose from 0.678 for the clinical model to 0.715 after addition of biomarkers for prediction of all-cause mortality. For cardiovascular mortality, c-index was improved from 0.703 to 0.753. Added value of biomarkers was also evaluated by reclassification analysis. Associated net reclassification improvement (NRI) [95% CI] for 48 months death were 0.395 [0.068-0.653], p=0.033 and 0.395 [0.068-0.653], p=0.020 for all cause and cardiovascular death, respectively.

Conclusions SST2 appears as a promising prognostic biomarker. It could provide additional information to natriuretic peptides

The author hereby declares no conflict of interest

0139

Detection of myocardial fibrosis in patients with hypertrophic cardiomyopathy evaluated by biological markers

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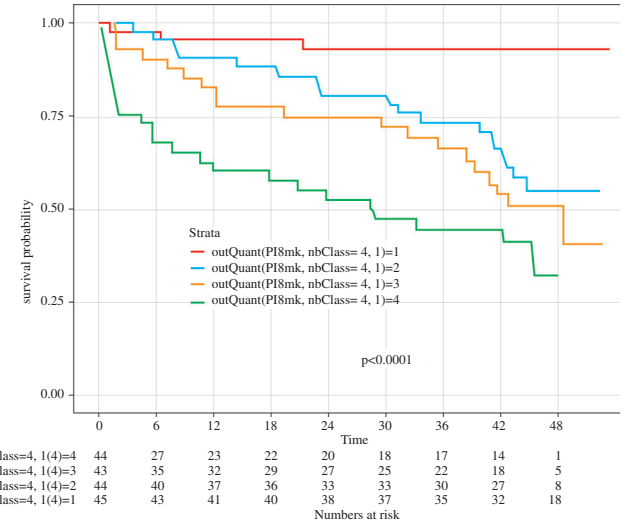
Background Hypertrophic cardiomyopathy (HCM) is a disease characterized by cell disorganization with a matrix remodeling leading to fibrosis.

Aim The purpose of our study was to investigate biological markers which are the amino terminal pro peptide of type III collagen (PIIINP), a metalloproteinase (MMP3) involved in the regulation collagen and its specific tissue inhibitor TIPM2. We included 107 patients and 175 controls. We studied the association of serum levels of these markers with clinical, echocardiographic and prognostic parameters.



Abstract 0074 – Figure: Kaplan Meier, all cause mortality.Pronostic score of Lupon et al (clinival and biomarkers)

Results In the study population, the mean age was 49 years, 60 were male, 75% were symptomatic (palpitations in 38% of cases, chest pain in 28% of cases, syncope in 25% of cases) the rate of PIIINP was significantly higher in patients compared with controls (361.92±41.6pg/mL vs 242.80±46.7ng/ml; p=0.036). Same for themmP3 and TIMP2 levels (12.16±4.3pg/mL vs 10.4±3.78pg/mL and 63.4±23.5pg/mL vs 57.50±21.43pg/mL, respectively, p=0.03). We note that themmP3 / TIMP2 ratio is correlated to left ventricular (LV) mass and the left atrium volume (r=0.560, p=0.002, and r=0.633, p=0.001 rspectively), the PIIINP is correlates to the maximum thickness of the LV (r=0.466, p=0.002), to the global longitudinal Strain of the LV and its mass (r=0.578, r=0.001 and r=0.490, p=0.003 respectively). Patients with a history of syncope and episodes of non-sustained ventricular tachycardia, were younger and had a significantly higher rate of PIIINP (432.5±34.6pg/mL vs 320.44±32.8pg/mL, p=0.002) and less LV GLS (-14.7±2.6% vs 16.7±3.2%, p=0.0034).

Conclusion HCM is characterized by ventricular and atrial remodeling and fibrosis related to the collagen accumulation that is reflected bymmP3/ TIMP2 ratio serum and the PIIINP concentration. These parameters were correlated with LV function may represent potential risk factors for the ventricular dysrhythmia and LV dysfunction.

The author hereby declares no conflict of interest

0316

Mid-regional pro-atrial natriuretic peptide for predicting mortality and morbidity in hypertrophic cardiomyopathy: a comparison with N-terminal pro-brain natriuretic peptide

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